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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/733,905	12/12/2000	Takayuki Yamano	200581US2	5479

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EXAMINER

PALADINI, ALBERT WILLIAM

ART UNIT PAPER NUMBER

2125

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/733,905

Applicant(s)

YAMANO ET AL.

Examiner

Albert W Paladini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification does not provide an antecedent basis for "setting a value which is equal to or below a tensile strength and exceeds a yield strength as recited in claim 1.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1

Lines 11-13 recite, "setting a value which is equal to or below a tensile strength and exceeds a yield strength as an apparent yield strength with respect to said metal sheet." It is not understood what variable is being set in this recitation. It is also not understood what is meant by the value, which "exceeds a yield strength as an apparent

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yield strength with respect to said metal sheet.” The use of the phrase “apparent yield strength” is not understood. How does a value exceed “a yield strength as an apparent yield strength?”

In lines 15-18, it is not understood what is meant by “replacing a portion of said first prediction equation of an amount of dimensional accuracy defect corresponding to said yield strength with said apparent yield strength.” The claim does not recite what specific portion of a prediction equation is replaced. The use of the phrase “apparent yield strength” is not understood.

Appropriate correction and clarification is required.

Art Rejection

4. An art rejection has not been provided since steps, which appear to be critical to the method, are not understood as explained in paragraphs 1-3.

Relevant Prior Art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The art selected falls in the general area of predicting sheet metal deformation, and determining the accuracy, as gleaned from what appears to be the objective of the invention.

Tang (5379227) discloses a method and system for method for aiding sheet metal forming tool design, for use with a computer including memory, and forming tools including a draw die, punch and binder having surfaces designed to form the sheet metal into a part. The sheet metal is represented as a mesh including a plurality of

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nodes and associated elements. The method comprises the steps of numerically determining by the computer the sheet metal mesh nodes contacting the tool surfaces due to the punch advancing to form the part and applying a displacement increment to the nodes. The method also comprises determining by the computer a stress state at least one sampling point associated with the elements, so as to determine whether the stress state is unloading based on an incremental deformation theory of plasticity, and determining by the computer for each unloading sampling point when the sampling point should change in the transition from a plastic state to an elastic state, so as to enhance convergence of the numerical solution of the displacement increment. These sampling points are preferably required for numerical integration to establish the tangent stiffness matrix and the nodal forces.

Tang (6205366) discloses a metal sheet deformation predicting technique, which computes stress for strain increments using Morz's hardening equation in a yield surface equation. Strain increment deltas are computed for initial loading, unloading, and reloading for conditions with and without a break in the yield surface.

Kawano (6544354) discloses an experimental and analytical technique for providing high strength steel sheets with high impact energy absorption properties used to produce parts, which require this property.

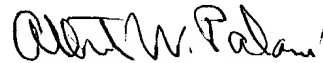
MacEwen (6371996) discloses a finite element method of using isotropic plasticity to model the forming of anisotropic sheets, which replaces the prior analytical function approaches by Hill, Karafillis, Boyce and Bartlat, which suffers two difficulties. First, since the function is a relatively simple, closed-form, algebraic expression it can only provide an approximation to the shape of the actual yield surface in six-dimensional stress space. In fact, in many cases the allowable stress space for analytical yield functions has been reduced to those appropriate for plane stress deformation. Secondly, the constants in these functions must be determined experimentally, from laboratory measurements of the anisotropy of the yield stress and/or r-value (ratio of width to thickness strain in a tensile test) for various strain paths and directions in the sheet. Typically, five or more experimental measurements must be made in order to evaluate the constants of an analytical yield function.

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6. Any inquiry concerning this communication or earlier communication from the examiner should be direct to Albert W. Paladini whose telephone number is (703) 308-2005. The examiner can normally be reached from 7:30 to 3:30 PM on Monday, Tuesday, Thursday, and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Leo P. Picard, can be reached on (703) 308-0538. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Albert W. Paladini
Primary Examiner
Art Unit 2125

September 23, 2004